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How play enhances creativity in problem based learning

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Abstract

This article draws on 20 Danish university students' reflections *in and on* a Problem-based Learning process (PBL). The study showed how a more playful approach changed how the students collaborated, communicated, and approached a given task. They felt more creative, open minded and engaged compared to some of their earlier learning experiences. They sensed a change in how they interacted with each other, a different tone arose in their social bonding, which led to the overall question for this article: What happens when play becomes part of a PBL process and how can we understand the relation between play and creativity in higher education learning processes?

Keywords Play, creativity, PBL, Learning, collaboration

Introduction

At Aalborg University the problem-based project-form and project-organized learning have formed the foundation for pedagogy since 1974 (Kolmos, Fink, & Krogh, 2006). The grounding philosophy emanates from John Dewey, Kurt Lewin and Jean Piaget and

their ideas of 'learning by doing' as a way to teach students both content and thinking strategies. By using concrete problems or a theoretical problem as starting point, students develop an ability to define problems, analyze, collaborate and learn. In the Aalborg model focus is on teamwork and creation of knowledge emerging most abundantly from a concrete practice experience. These real-world problems are primarily the motivation and driver for the students' learning.

In contrast to traditional teacher-centered learning the Aalborg approach is characterized by being student-centered in that students are asked to take responsibility for their own learning and expected to gain new knowledge and develop flexible knowledge through integration of information across multiple domains in a self-directed way. This inter-disciplinary learning demands an ability to combine methods, theory and subjects across traditional subject-boundaries in endeavor of transferring knowledge from one field to another.

In the Engineering program of Architecture & Design a new over-all PBL model bringing in play was introduced in 2004 (Küib, 2004). The approach was called the PpBL model. The idea behind it was to create a deeper interplay between the goal-oriented aspects of the university pedagogy and a more intuitive, artistic and reflective approach. In PpBL play is seen as mediator for beautiful, functional and meaningful design emerging from a stronger focus on intuition and artistic development. The implications of this approach were never developed further, as far as I know. Hence, we still have many unanswered questions regarding the role of play. What is play? What happens when we start integrating play and how can we understand play and play-based learning more theoretically as well as empirically? What is the relationship between play and creativity?

The role of play

Seeing play as the point of departure for creativity, we acknowledge it as a way to give rise to new ideas, to understand, learn, and find new forms, symbols or patterns on which new design, knowledge, society etc. can be built or organizations develop. Huizinga already argued for the importance of play fifty years ago, when he introduced it as a central life function, which we cannot regard purely as a biological, psychological or a physical function (Huizinga, 1963/1993). Instead, he together with other theorists have empha-

sized that it is acknowledge as a phenomenon that exceeds our basic needs of sustenance (Fink, 1968; Gadamer, 1960/2007; Schiller, 1967; Winnicott, 2005). This brings us to an understanding of play as a spontaneous act of vital impulse calling upon something even deeper in us as human beings than the immediate feelings and reactions, which we at first hand might connect with play (fun, energy, excitement, relief etc.), or play regarded merely as a 'tool' for an artistic learning process, as Kiib asserts it with his reference to Schön and his practice-epistemology.

Play is 'not just' a matter of fostering *intuition* and *new knowledge related to praxis* (Kiib, 2004, p. 205); it does also open for a more existential influence being an ontological event, a 'geschehen' or a life-phenomenon that catches us, if we open ourselves to it (Gadamer, 1960/2007). It is not just a tool for building new skills, to fulfill certain purposes, or a way to reach a goal as means to an end. Play is an ongoing Bildung process, a liberal learning or self-cultivation that goes beyond the improvement of required abilities. "*Play is always a confrontation with being*" (Fink, 1968, p. 23).

This overall understanding of play does make it a paradox that we are confronted with when we talk of bringing it in as a mediator. On one hand we need to acknowledge it for its own sake, its own internal purpose, but on the other we challenge this acknowledgement when we try to 'use it' to reach certain goals. Realizing that play is not a tool to be mastered, but an ontological and unpredictable event that may take us in unexpected directions makes it clear that the outcome of a play process can never be predicted or controlled. So what do we do when we want to bring play into organizations or as part of an education?

Empirical study

During the years I have developed a model called FIE (Thorsted, 2013), which is a concept to support facilitators and participants in their navigation in unpredictable processes. This concept was also the framing for the empirical study for this article. In 2013 at Aalborg University, Institute of Communication and Psychology, Human Centered Informatics 7th semester, 20 students participated in the course "The role of a Consultant in Practice". The overall learning goal for the students were to gain knowledge around different interventions methods, the role of being a consultant and its theo-

retical foundation, combined with concrete skills in performing and facilitating intervention in practice. This experience should lead to competences in handling different consultancy tasks. The students were a mix of students from Human Centered Informatics and newcomers from other educational programs both inside and outside the university.

The course began with a three days workshop where the group of students worked with an external consultant, who introduced them to a 'real world challenge' on the first day. To pass the course, each student had to complete a written assignment of 10 pages after the workshop. This assignment should include reflections on the challenges they had met in the creative process and the strengths and weaknesses they had experienced regarding the playful approach and the use of FIE as a concrete intervention method. The assignments produced all together 200 written pages reflections, upon which this article builds.

Each assignment has been read and more spontaneous and interesting observations and reflections of the students have been marked. This left me with nine assignments, which were re-read carefully and condensed into themes. Once again I returned to the text to divide the themes into few overall categorizes. Each of these categories were more closely scrutinized and leading to a selection of a few student statements to elaborate on (Kvale, 1997).

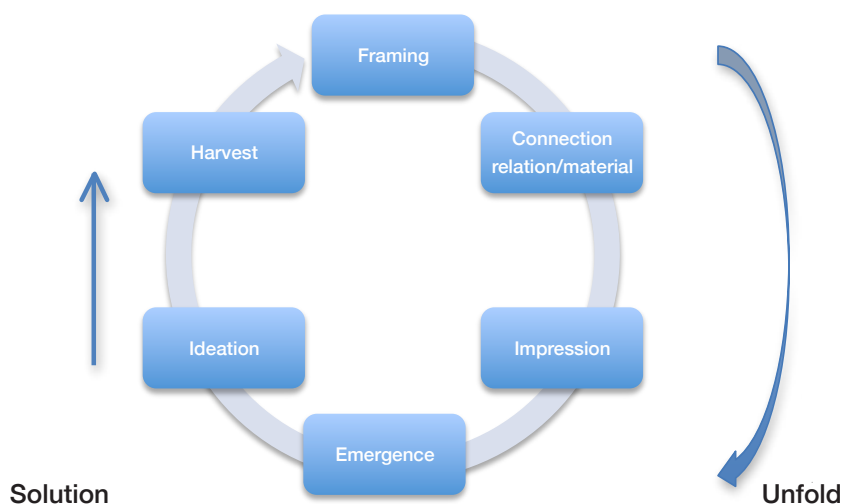


Figure 1: FIE © Ann Charlotte Thorsted

FIE as a creative intervention method

The task given the students was framed by FIE (Figure 1), a new *social technology* (Jöhncke, Svendsen, & Whyte, 2004) and a concrete playful intervention form centered around the establishment of a 'social field,' meaning a space and time of a certain quality, collective sensitivity, creativity, attention, intention and engagement (Scharmer, 2007).

The name FIE refers to the first letter in each of the titles for respectively step 2, 3 and 4 in the model, which all together represent the novelty of the process compare to other creative approaches. The three steps are in Danish 'Forbindelse', 'Indtryk' and 'Emergens'; in English Connection, Impression and Emergence.

The entire model holds of six steps. For the first four steps it is important that the participants do not enter with a solution-mode, but try to establish room for openness, collaboration and meaningful contact to the given challenge. This is also called the 'unfolding mode'. Not until the participants reach step 5 and 6 are they expected to turn their attention towards finding a solution to the given challenge (solution mode). At the first step (Framing) the external consultant and I had already established a frame for the whole process before we met with the students. This framing was a mutual agreement between the consultant and us as a group to make sure that we all knew why we were gathered under what conditions. Who were expected to do what and what was the time schedule? What would be the product delivered from the student group to the external consultant?

Step two (Connection) refers to the development of a collaborative and trust-based relationship between the participants in the co-creation group and a connection to the challenge or 'Material', which the co-creators were gathered around in endeavor to find a solution, novelty or new understanding of the given challenge. The purpose of this step is to help the group to reach a stage where they feel safe, comfortable and trusting, so they dare to let go, start playing, become open minded and creative. This I also calls the creation of a '*community of play*' understood as "*a personal and trust-based relationship that unfolds us as human beings at an individual as well as a collective level and hereby enhances a more meaningful and personal human encounter*" (Thorsted, 2014, p. 1).

At the third step (Impression), the focus is on getting fully immersed in the task and to reach a point where the participants understand the challenge in depth. Earlier presuppositions have been unfolded, discussed and set aside for new impression as required by phenomenology (Van Manen, 2014), which is the grounding philosophy for FIE. The participants are now standing in front of the window of new possibilities, the field of what they do not know (Darsø, 2011). They may more intuitively have sensed new potentials, but they are still expected to remain in the open, play out realities in the *double existence of reality and illusion* that characterizes play (Fink, 1968). When playing we move between two worlds, the 'real world' and a 'play world'. In play world we are allowed to experiment, try out new ideas before arriving at final closure on a solution.

At step four (Emergens), the participants are filled with impressions, almost bursting with new insight. They are now in the cross field between what they already know and what is to come. In the emergent moment we listen for whatever calls us. Part of this 'calling' will of course always be: a) rooted in whom we are as persons (the idiosyncratic and personal voice of the subject), b) the epistemological and professional knowledge and know-how, we have learned (the voice of our knowing) c) as well as demands and interests of the political, professional and institutionalized systems we work with or are part of (the voice of the systems). But there is indeed also a 'fourth voice' that neither has to do with the voice of knowing, voice of doing, nor the voice of our personal being. This fourth voice is, according to the Danish professor Finn Thorbjørn Hansen, *the voice of the phenomenon itself*, as it presents itself to us ontologically (Hansen, 2014).

In the emergent moment "*a sudden insight reveals a truth about a phenomenon*" (Van Manen, 2014, p. 235), new meaning takes form, perhaps experienced as a certain flash of insight.

To sum up, what we have done in FIE so far is to bring in lived experiences, collect impressions collectively to be able to connect ourselves profoundly to a query to make original thoughts strike. This we do through a state of *active passivity* (Van Manen, 2014) and a "*pregnancy and affective gestation period and condition necessary for an inceptive happening to happen*" (Van Manen, 2014, p. 239). The term 'inceptive' refers to Heidegger and his understanding of the fragile moment, when we are struck by something.

Step five (Ideation) and six (Harvest) are similar to other creative approaches, and therefore these will only be mentioned briefly. During the last two steps the impressions are given a new expression, new ideas developed (Ideation). The participants have entered the solution-mode and are now directing their attention fully towards finding a solution to the problem to be able to 'harvest' from their engagement in the process. Play can still be a part of this last part of the process.

Although the different steps are presented linearly, it is important to underscore that this only count for the theoretical presentation. In practice the process evolves in a much more blurred fashion.

FIE practiced amongst the students

This section offers a few examples of activities from the workshop.

The first day, the students were invited to bring their own favorite toy (Connection/Relation). As part of the activity, chairs were organized in a circle from which each student introduced themselves for the rest of the group through their toy. After the introduction, they were divided into smaller groups and given time to establish their groups.

In one of the next activities the students used LEGO bricks to reach a deeper understanding of the introduced challenge (Connection/Material). At step three (Impression), each group drew a map of all the information and impressions they had gathered, which led to the formulation of a series of questions and wonderings that was used as part of a Socratic Dialogue (Hansen, 2000).

As entrance to step four (Emergence), the scene was changed completely. Had we been closer to nature, it would have been ideal to integrate this as part of the process. Instead I chose to use the gymnastic facilities, and for half an hour the students played in the big hall. Here they were challenging each other, being physical and doing something that, at first sight, had nothing to do with the given task. Using their bodies was another way to reflect and let their impressions percolate, which led on to an accumulation of all their impressions into a living sculpture.

To mark the shift in the process from the 'Unfolding mode' to 'Solution mode' the students were dressed up in identical white work-suits (Ideation). At this point they were offered all different kind of materials (painting, paper, yarn, clay etc.) to play with, to

illuminate and conceptualize their ideas. At the last step (Harvest), the students conducted a catalogue with new ideas to be passed on to the external consultant.

Plays emotional and bodily impact

We have now reached the point where concrete reflections of the students' are brought in. Not surprisingly did the students in general experience play as great fun, something that gave them energy and made them laugh and feel joyful.

"It was an interesting break from the more traditional teaching and still relevant and giving in spite of not being pure lectures. Perhaps because this is more like the real world and personally these kind of processes have a huge impact on me, as I use my whole body and therefore remember most of the content afterwards, which enhances my chances for profiting from the experiences in the future". This reflection from one of the students emphasizes that the learning process differed from most of her other experiences. Play made her use not only her brain and intellect, but her whole body, which made her remember and open to deeper learning.

Another student pointed out, how play made it easier for him to visualize and conceptualize new ideas. One could say, with reference to J. Heron, that the playful approach offered the students a possibility to enhance different knowledge forms. Heron talks of 'experiential knowing' as a *"knowing through the immediacy of perceiving through empathy"* (Heron & Reason, 2006, p. 149) and 'Presentational knowing' building on experiential knowing providing an expressive form of imagery through all different kind of movements and materials, as practiced in FIE.

Variation

After a relative short period, the students began to accept that there was no precise time schedule for the three days, no listing of activities outlined beforehand. They began to relax and even enjoy being surprised and continuously challenged by new activities. One of the students described the variation in the whole program as stimulating for his thoughts and actions. Not knowing what came next was conducive for his ability to be creative. This is very much aligned with another study conducted by Tara Fenwick, who studied innovative learning in workplaces (Fenwick, 2003). Her study also

indicated that variety, challenges, inventive activities are some of the basic elements for creativity and generative learning.

Time

Several of the students stressed the importance of having enough time to immerse in the process and to enter a space of play, where preoccupation with clock time falls away. Similarly, Amabile rejects the common assumption that people come up with their best ideas when time is tight. Her studies showed how creativity 'under the gun' is not the best solution for the development of creativity (Amabile, Hadley, & Kramer, 2002).

Freedom

Another element found in the assignments was the freedom to try out or 'fool around' as March already advocated for in 1979, when he was one of the first to talk of introducing play into organizations in order to explore new possibilities and challenge the necessity of consistency in organizations (March, 1979). Innovative or generative learning requires time and space without too many constraints.

Some of the students had earlier taken part in another creative process at Aalborg University building on the ideas of "The Creative Platform" (Byrge & Hansen, 2008). In this process one of the students had felt pushed, controlled and manipulated in a way that took away her creativity. *"I actually felt it was unpleasant to be creative on demand"*, as she formulated it. As already emphasized is FIE building on phenomenological and the idea of *active passivity* understood as moments where a sudden insight (inception) comes to us, when we are 'actively waiting' for it to occur. This approach seemed to have suited the majority of the students well. In FIE we frame the process in endeavor to create something but just as important is the given time and spaces and a will to let us be seized by an inceptual thought through active-passivity as Van Manen asserts (Van Manen, 2014).

Getting out of the closet

The same student explained in her assignment how she had experienced how the first introduction activity *"got her out of the closet"*. By this she meant that she did not feel intimidated nor did it make her hide. Her earlier experiences had been that staying in the safety of

the closet produced a barrier for her creativity. *"That is why I see this welcome play as an important factor for the openness of the whole group as it opens up for our own personal closet."*

In her view, trespassing one's personal boundary early in the process, showing who you are and by this one's own vulnerability, enhanced a mutual respect amongst the group members right from the beginning of. Being courageous, putting herself at stake by telling her personal story around her favorite play toy made her overcome her fright for others judgment and reservation. This together with the openness of the other participants created a feeling of belonging.

Getting out of the closet can also be explained through Rollo Mays talk of *social courage* as an important element of creativity. Social courage is the courage to relate to others and the capacity to risk one's self in endeavor to achieve something, just as the students had done.

The American professor of management Lloyd Sandelands says: *"Play is an enlargement of love that calls upon the deepest vitality of human community and thereby upon its greatest possibilities for adaption and development"* (Sandelands, 2010, p. 2). The young student did not talk of love but a mutual respect for the individual and a shared openness as the key for the creation of a human encounter. By showing her own vulnerability, she felt acknowledged, which made her relax. Her own openness, together with the openness of her fellow students mediated a respectful way of being together and an acknowledgement of the different students as individual human beings.

Another student wrote; *"it is one of the most collaborative acts I have ever taken part in"*. Several of the students were taken by surprise, because it felt so easy and comfortable to work together, to co-operate and co-create with people they hardly knew while playing. This ability did not only come forward in the small groups, it also spread out to the whole group of 20 persons, as observed by others.

A new social field

One could say that building up this new kind of intimate relationship created a shift in the students' attention to each other and made them enter a new social field. This field was also characterized as a place where a unique 'mood' and 'attitude' emerged. One student explained the rise of the certain 'mood' with reference to Tina Berling Keiding and her studies of the psychical rooms importance for

informal learning processes at a university (Keiding, 2012). Having the opportunity the first day to establish and organize their own room made it easier for them to give themselves away to the unknown and become playful. They felt safe, comfortable and a certain "*power of cohesion*" developed in spite of the fact that they had only known a few of the group members beforehand. The 'tone' changed, as it was formulated by several of the students. It became more appreciative and mutually engaging.

The Norwegian professor in nursing Kari Martinsen speaks of the 'tone' as an utterance in a situation, we share with others, where a certain attitude or way of being in the world is unfolded (Martinsen, 2006). The tone is shifting, when we get attuned and have accepted the invitation of the other to attend his world. To be attentive is both an activity, something we do (get out of the closet) and at the same time a stepping back to give room for the other to come forward, to sense, to listen more intuitively for whatever the moment calls us to do.

To find a tone, a certain attunement together with others is like the creation of a shared pulse that characterized the resonance within the whole group and influenced how they communicated, acted and responded to each other. The tone is like a separate layer, as Martinsen describes it, carrying deep significance, as it plays a crucial part in the way the relationship in a group is performed and how a group is working, as the study showed.

Conclusion

I began the article by discussing PBL and PpBL as it is utilized at Aalborg University, where the later is centered on play and creativity. The discussion emphasized a need for a deeper understanding of creativity and play and how the two phenomena can be understood in relation to each other and learning.

An empirical study brought in gave 20 Danish university students' reflections in and on a playful approach to a PBL task given in 2013 framed by the playful method FIE. The study showed how the students' attention to each other changed and how they developed a 'social courage' as an important step for fostering creativity. By investing themselves more personally in the learning process the relationship between the students changed. It became more respectful, which encouraged them to be more open-minded and sen-

sitive. The mood and tone in the group shifted and a more appreciative and collective engagement rose. A new 'social field' was created, or one could say, they developed a Community of Play.

Not surprisingly, the variation in activities not only offered the participants the opportunity to enhance creativity, but also the use of their body, the freedom and time to explore, became important elements for the development of creativity as a whole. The ontological dimension of play did also lead to the emergence of a more existential calling; they got out of the closet and dared to show their own vulnerability, which had an important impact on how they experienced the whole learning process. It could be interesting to follow up on this to see whether and perhaps how, this experience has influenced their further approach to their study.

Given the limited empirical documentation, one should be cautious about generalizing too far. However, this study does point into some interesting future directions for generative learning and creativity. Is it true that it is more difficult to gain inceptual insight in concert with others as van Manen asserts? This tentative study shows something different, which would be interesting to investigate further. What more precisely does the Creative Platform or other creative processes building on different epistemologies offer compared to FIE?

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